

James City County Green Building Design Roundtable Report

September 14, 2009



Table of Contents

• Introduction.....	TBD
• What is Green Building and Design.....	TBD
• Green Building in Virginia.....	TBD
• A Review of Other Local Governments.....	TBD
• Existing Policies and Activities in James City County.....	TBD
• Sub-Committee Recommendations.....	TBD
• Attachments	
○ Tax and Utility Incentives Available to Homeowners (Sept. 2009)	
○ Tax and other Financial Incentives Available to Commercial Building Owners (Sept. 2009)	
○ Green Building Design Incentives	
○ Green Buildings in Alexandria Policy Recommendations, Appendix 5 <i>Regional Green Building Policies and Programs Overview: COG Members</i>	
○ LEED Permit Submission Requirements for Site Plans in Arlington County	
○ Falls Church City Green Home Award Program	
○ Arlington County Summary of LEED Site Plan Ordinance Language	
○ News Article on Fairfax County Green Building Policy Adoption	

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1. Introduction

Supervisor Jim Kennedy initiated the Green Building Roundtable Forum with the purpose of developing and promoting green building best practices to be used for public and private facilities in James City County. The kick-off meeting was held on March 2, 2009, and the Forum subsequently met on a monthly basis. The Forum members included a diverse group of individuals from the public and private sectors, and with a range of expertise in engineering, design, and construction, among others.

As discussed further in Section 2, green building and design covers a broad range of topics, from sustainable site planning, to water and energy use and conservation, to materials and resource conservation, to indoor air quality. In addition to the range of topics, the Forum recognized that different challenges and opportunities might apply in different contexts whether it was existing development versus new development, residential construction versus commercial construction, or public versus private facilities. Finally, the Forum recognized the need to help provide education and engage the community and private sector in discussion of green building and green design efforts. In recognition of the scope of the effort, the Forum created five sub-committees which met separately to discuss a set of specific topics. These sub-committees were as follows:

- **Finance:** This subcommittee looked at funding, incentives, legislation and economic development opportunities.
- **Housing:** This subcommittee looked at green building practices for existing homes, such as retrofitting and weatherizing.
- **Design and Construction:** This subcommittee focused on sustainable development practices for both commercial and residential applications including sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality and certifications.
- **Communications:** This subcommittee considered ways to actively engage with the community and the private sector to promote green building practices.
- **Research and Development:** This subcommittee explored best practices for sustainability and coordinated speakers for the Forum.

The report that follows provides background and context for the efforts of the Forum (Sections 2, 3, 4 and 5), and presents the findings and recommendations of the Forum and its sub-committees in Section 6.

2. What is Green Building and Design?

Green building and design is the practice of creating and using healthier and more resource-efficient models of construction, renovation, operation, maintenance and demolition. Green building focuses on sustainable site planning, safeguarding water and water efficiency, energy efficiency and renewable energy, conservation of materials and resources, and indoor environmental quality.

The United States Department of Interior has forecast that 75% of all U.S. buildings will be built new or renovated by 2035. The Environmental Protection Agency has reported that building construction, maintenance, and disposal account for:

- 39 percent of total energy use
- 12 percent of the total water consumption
- 68 percent of total electricity consumption
- 38 percent of the carbon dioxide emissions
- 60 percent of total non-industrial waste

If the forecasted future development follows the model that has characterized much of the conventional United States urban development to date, then the County will face major costs in necessary services, infrastructure and city administration and to its quality of life. However, sustainable development which applies green building practice can reduce or eliminate the negative impact of buildings on the environment while promoting enhanced building performance and occupant health, thereby creating a civic asset rather than an on-going liability.

Green building practices provide both site specific and County-wide benefits through savings in energy, resource use, and through the reduction of outdoor and indoor pollutants. The many new green building projects in the U.S. in recent years has begun to provide significant data about the benefits of green buildings. In general, green buildings:

- Consume 30% to 50% less energy;
- Produce 35% less in carbon dioxide emissions;
- Consume 40% less water; and,
- Produce 70% less solid waste
- Improve public health and building occupant productivity.

Green buildings create economic efficiencies for building owners and operators, increase real estate value, and reduce the tax burden by using existing urban infrastructure more efficiently and through load reduction, and reduce otherwise urgent and expensive infrastructure upgrading.

A General Services Administration (GSA) survey of 12 of its green buildings found the following specific benefits:

- 26% less energy usage than national average (65 kBtu/sf/yr vs. 88 kBtu/sf/yr);

- 13% lower aggregate maintenance costs than the national average (\$2.88/sf vs. \$3.30/sf);
- 27% higher occupant satisfaction than the national average;
- 33% fewer carbon emissions than the national average (19 lbs/sf/yr vrs. 29 lbs/sf/yr)
- Two LEED-Gold buildings in the study consumed 54% less water than the national average.

It is important to acknowledge that some green building features and systems can result in added initial design and construction costs. The *Costs and Financial Benefits of Green Building* (Katz 2003) study found a 0.66% cost premium for LEED Certified buildings, a 2.11% for LEED Silver buildings, a 1.82% for LEED Gold buildings, and a 6.5% premium for LEED Platinum buildings. The overall average cost increase was 1.84%. It should be noted, however, that each project has a unique set of factors including size, location, certification level, project credits, timing, architecture and a host of other items that will determine specific project cost. Trends show that costs for green buildings are decreasing as the market continues to grow and mature. It is expected that these costs will decrease even further as designers, builders, subcontractors and manufacturers gain experience in an expanding market. Rather than seeing green building features as an added cost element, green features should be recognized as a way to increase the building's value for owners and developers by lowering operating costs and providing a more desirable environment for occupants. As one illustration of this point, the Costs and Financial Benefits study found that an upfront investment of less than 2 percent of construction costs yields life cycle savings of over 10 times the initial investment.

Over the years, a number of certification systems have developed that will provide third party verification that green building standards have been achieved, not only for new construction, but also to projects like renovations and to operations and maintenance activities. Most prominent among these certification systems is LEED, which was developed by the U.S. Green Building Council. Similar to other certification programs, the LEED program consists of a checklist of items in categories of sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, locations and linkages, awareness and education, innovation in design, and regional priority items. Developers can achieve points in the different categories and as a result, there is flexibility in how any given project achieves the certification points needed. The LEED system also allows flexibility in the desired level of certification to be reached: the program offers Certified, Silver, Gold and Platinum levels, reflecting an increasing level of points reached. It is also important to note that systems often offer certifications tailored to the type of project being constructed. For example, there are specialized LEED rating systems for: New Construction and Major Renovation; Existing Buildings: Operations and Maintenance; Commercial Interiors; Core & Shell; Schools; Retail; Healthcare; Homes; and Neighborhood Development. The LEED for Homes system covers single family homes and low rise multifamily development, however, LEED is currently piloting a LEED for Mid-Rise multi-family (4-6 stories) system.

There are a number of certification and/or recognition systems other than LEED that have been developed, some of which are focused on specific types of development such as residential

construction, or on specific aspects of green building such as energy efficiency. The following are very brief summaries of some examples:

- The EarthCraft House Program system provides certification of single and multi-family housing, for both new construction and renovation activities.
- The Collaborative for High Performance Schools is a nonprofit organization that has developed a best practices manual and a building rating and recognition program for schools.
- Energy Star is a program administered by the U.S. Environmental Protection Agency that awards ENERGY STAR ratings to buildings, manufacturing plants, and homes that meet energy performance standards after verification by a nationally trained energy rater.
- Green Globes is a program owned and operated in the United States by the Green Building Initiative (GBI). The program is designed for use on building projects of any size, and is suitable for large and small buildings including offices, multi-family structures and institutional buildings such as schools, universities and libraries. It also can be applied to new construction, retrofits and management and operations of existing buildings. In 2005, GBI became the first green building organization to be accredited as a standards developer by the American National Standards Institute (ANSI), and began the process of establishing Green Globes as an official ANSI standard. The GBI ANSI technical committee was formed in early 2006. Green Globes certification is achieved by undergoing third-party verification by trained regional verifiers.
- National Association of Home Builders (NAHB) developed the Model Green Homebuilding Guidelines, a set of guidelines for residential construction that includes guidance and a point scoring system. In 2007 the National Association of Home Builders (NAHB) and the International Code Council (ICC) partnered to form to establish a standard definition of what is meant by "Green Building." The standard was developed in compliance with the requirements of the American National Standards Institute (ANSI). The resulting ANSI approved ICC-700-2008 National Green Building Standard defines green building for single and multifamily homes, residential remodeling projects and site development projects. Compared to the NABH Guidelines, the Standard includes more mandatory items and suggests that higher thresholds be met in several categories. A new threshold - "Emerald" - was added to denote the highest achievement in residential green construction. The NABH program includes the option of National Green Building Certification based on the Guidelines and the ICC Standard.
- Laboratories for the 21st Century Environmental Performance Criteria (Labs 21 EPC). This is a program dedicated to improving the environmental performance of U.S. laboratories.

In addition to the certification program examples described above, some states and localities have developed their own sets of green building standards.

A final topic to note in relation to green building and design is building codes. In Virginia, the Virginia Uniform Statewide Building Code (USBC) contains the building regulations that must be complied with when constructing a new building, structure, or an addition to an existing building. They must also be used when maintaining or repairing an existing building, or

renovating or changing the use of a building or structure. The USBC is based on model codes developed by the International Code Council (ICC). Over the years, the ICC has developed the International Energy Conservation Code, and has recently launched an initiative to develop an International Green Construction Code, a model code focused on new and existing commercial buildings. The evolution of the building codes, including the USBC, will include increased energy efficiency in the future.

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3. Green Building in Virginia

The Commonwealth helps set the green building agenda by its own actions, through funding choices, and, because Virginia is a Dillon Rule state, through its legislative framework. On the first front, the Governor has recently taken action that sets the state government on the road to greener building. In June 2009, the Governor of Virginia signed Executive Order 82, "Greening of State Government" as part of the greater RENEW VIRGINIA Initiative. Building upon Executive Order 48 "Energy Efficiency in State Government" which was signed in 2007, Executive Order 82 states that all executive branch agencies and institutions entering the design phase for construction of a new building greater than 5,000 gross square feet in size, or renovating such a building where the cost of renovation exceeds 50 percent of the value of the building, shall meet Department of General Services (DGS), Division of Engineering and Buildings "Virginia Energy Conservation and Environmental Standards" for energy performance and water conservation. In addition, all such buildings shall conform to LEED silver or Green Globes two-globe standards, unless an exemption from such standards is granted by the Director of the DGS upon a written finding of special circumstances that make construction to the standards impracticable.

A second way that the Commonwealth sets the green building agenda is through its legislative framework. From a green building standpoint, the abilities given to localities by the Commonwealth to regulate or create green building programs is an important consideration. The Commonwealth does not give localities the authority to create or amend the Virginia Uniform Statewide Building Code, or put in place regulations that have the effect of doing so, to suit a desired local objective. There is some latitude for localities to create green building programs via mechanisms included in the Zoning Ordinance or by Board adopted policies related to the Zoning Ordinance. Under the Commonwealth's legislative framework, localities may use certain energy efficiency or green building incentives. For example, one recent legislative amendment allows localities to consider energy efficient buildings as a separate class of real property for the purposes of local taxation, while another amendment allows localities to grant incentives or provide regulatory flexibility to encourage the use of green roofs in the construction, repair or remodeling of residential and commercial buildings.

Finally, a third way that the Commonwealth plays an important role is by providing funding, or disbursing federal funding, for certain green building-related programs, such as the existing Weatherization Assistance Program or funds available through the American Recovery and Reinvestment Act of 2009 (see the recommendations of the Finance sub-committee in Section 6 below for more information).

4. A Review of Other Local Governments

A. Trends toward Green Building in the U.S.

The movement toward green building is in evidence from stories in the news across the United States. The following are three examples of localities that are pursuing green building ordinances or policies that illustrate the trend, and which were looked at by the Forum members. These examples help demonstrate the range of different approaches that have been taken by different localities, which is discussed in greater detail in Section B below.

- *Jersey City, New Jersey.* Pursuing local ordinances to be more environmentally conscious by purchasing hybrid vehicles, "greener" supplies and materials, and making renovations and new construction conform to higher standards. In addition, the locality is considering ordinances to provide a cash incentive for developers who meet LEED certification, with more money given for higher levels of certification.
- *Frederick County, Maryland.* Launched an environmental sustainability section on the Frederick County Government website. The section is intended to "serve as a gateway to county programs and provide a consolidated picture of the programs and activities dedicated to sustainability in county government and in the community." It will also "encourage sustainable living and engage the public in long-term efforts that support a healthy environment, vibrant economy and livable community for all Frederick County residents."
- *Southampton, New York.* The Village Board is considering adoption of a hybrid of the U.S. Green Building Council's Leadership in Energy and Environmental Design, or LEED, and the International Code Council's National Green Building Standard, known as ICC 700.

B. Virginia Localities

As illustrated by the examples in Section A, there are a number of different ways that localities can encourage the use of green building techniques. Perhaps most useful to examine are the steps that other Virginia localities have taken, since these localities are subject to the same state legislative framework outlined in Section 3.

On the public facilities side, an initiative that has been undertaken in some Virginia localities is the development of a green building policy that applies to publicly funded and built facilities, such as schools. These policies sometimes vary in the particulars, such as specifying a certain minimum square footage threshold, a type of green building certification program (LEED, Green Globes, etc.), a certain level of certification (LEED silver, LEED gold, etc.), and whether the

policy covers just new construction or is applicable to renovation/remodel projects or existing building operations and maintenance. One example is the City of Richmond, which recently passed a resolution to require achieving LEED silver certification for City-owned projects.

On the private development side, there have also been a number of initiatives undertaken by Virginia localities. These initiatives include expectations about achieving green building goals for site development plans, and use of mechanisms such as green building funds and density incentives. More detail is provided in the examples from the City of Alexandria and Arlington County below.

1. **City of Alexandria.** At its April 18, 2009 public hearing, the City of Alexandria City Council unanimously voted to adopt a proposed Green Building Policy. Per this Policy (not ordinance), the City expects that all new development requiring a Development Site Plan or Development Special Use Permit will achieve LEED Silver, or an equivalent rating, for non-residential development and LEED Certified, or an equivalent rating, for residential development. On their website, the City recognizes that a commitment to green buildings does not stop with the adoption of the Policy and states that a second phase is anticipated. This second phase will include the identification of methods to encourage existing buildings to incorporate green improvements, such as through improved outreach and incentives.
2. **Arlington County.** Arlington County uses a number of measures to encourage green building. The first measure is to encourage site plan projects to incorporate green building components and processes. Site plan projects are development projects seeking special exception to the Zoning Ordinance, exceptions which allow more flexibility in building form, use, and density than is normally allowed in the specific zoning district. The goal of this program is to reduce the environmental impacts of development. This program includes a set of six requirements:
 - **LEED™ Accredited Professional.** The program requires that all site plan projects have a LEED™ Accredited Professional on the development and construction team.
 - **LEED™ Scorecard.** All site plan applications in Arlington County must include the LEED™ scorecard with an explanation of all the LEED prerequisites each LEED™ credit, describing how they intend to achieve the credit, or why they are unable to incorporate the component into the project.
 - **LEED™ Tracking.** During project negotiation, a final number of LEED™ credits is identified and the commitment to incorporate them into the project is formalized in a site plan condition. This condition requires that reports be submitted with specific building permit applications. These reports track the progress of LEED™ prerequisites and

components throughout the demolition and construction process. Permits will not be issued if LEED™ reports are incomplete.

- **Construction Waste Management.** The developer agrees to provide a plan for diverting from landfill disposal the demolition, construction, and land clearing debris generated by the project. The plan should outline recycling and/or reuse of waste generated during demolition and/or construction. The plan should outline specific waste streams and identify the means by which waste will be managed (reused, reprocessed on site, removed by licensed haulers for reuse/recycling, disposal, etc.).
- **Energy Star Appliances for Multi-family Residential Development.** In order to reduce energy used by standard appliances and fixtures in high-rise residential projects, a set of standard language on use of EPA Energy Star appliances, fixtures and building components is included as a green building site plan condition (modifications may be made on a case-by-case basis).
- **Standard Site Plan Language.** The county has developed standard site plan language covering green building and LEED issues.

A second measure used by Arlington is a Green Building Fund (the “Fund”). The County established a policy of having site plan developers who do not commit to achieving a LEED rating from the U.S. Green Building Council (USGBC) contribute to the Fund. The Fund is used to provide education and outreach to developers and the community on green building issues. If a project receives LEED certification from the USGBC, the Fund contribution is refunded when final LEED certification is received. A third measure used by Arlington is a Green Building Incentive Program (the “Program”), which allows a private developer to apply for additional density if the project achieves a LEED award from the USGBC. The Program applies to all types of building projects (office, high rise residential, etc.) achieving any one of the four LEED awards.

Finally, other Virginia steps have been taken by Virginia localities to encourage green building. Examples include education and outreach (via websites like the City of Alexandria), and the provision of incentives (such as the adoption of a separate class of real property for energy efficient buildings in Roanoke).

5. Existing Policies and Activities in James City County

A. Public Facility Construction, Operations and Maintenance

James City County has already made progress on addressing environmental and energy stewardship for public facility construction, operations and maintenance. In January 2004, the Board of Supervisors passed a resolution on the Reduction of Transportation Petroleum Use. The resolution set a goal of reducing the County's petroleum usage by 20 percent by 2010. As result the County has been recognized by the National Alternative Fuel by earning the Leadership and Pioneer Efforts in Alternative Fuels Award from Virginia Clean Cities. In September 2007 the Board unanimously adopted the "U.S. Cool Counties Climate Stabilization Declaration" and was recognized by the Virginia Municipal League's (VML) "Green Government" Certification. In 2008, the County received third place in VML's Green Government Challenge. The County has also established a Green Team that, among other efforts, works to improve of efficiency and sustainability of County facilities and operations.

Also in the works through the draft 2009 Comprehensive Plan are goals for the County's public facilities. The draft Comprehensive Plan includes the following information under "Design of New Public Facilities" heading in the Public Facilities section of the Plan: "The existing public facilities owned by James City County are a source of pride for citizens and county staff members alike. New facilities should be held to high standards of cost-effectiveness, functional and operational efficiency, energy efficiency, green building design, durability, and, where applicable, aesthetic appeal, so that they complement existing facilities and serve the long-term needs of the County." In the Goals, Strategies and Actions portion of the Public Facilities section, the draft Plan includes the following strategy and actions:

1.4. Design, construct, and operate public facilities in a sustainable manner.

1.4.1. Utilize energy efficient heating, cooling, ventilation, lighting, (and similar) systems and designs for newly constructed facilities, and where feasible, for renovations of existing County facilities. Innovation and technology (such as that found in geothermal heating and cooling systems, green roofs, and solar panels) should similarly be employed where feasible, and where appropriate levels of long-term sustainability, cost savings, efficiency, and durability can be clearly expected or demonstrated.

1.4.2. Build all new County Buildings and facilities to meet or exceed Silver LEED (Leadership in Energy and Environmental Design) (or industry similar or successor) standard wherever applicable. The Silver LEED (or industry similar or successor) standard should also be sought for renovation projects whenever feasible. Adopt a specific County policy governing the application of sustainable building standards to County built and occupied facilities and buildings.

1.4.3. Utilize Low-Impact Development (LID) designs for newly constructed facilities, and where practical, for renovations of existing County facilities.

While a specific County policy as mentioned in 1.4.2 above has not yet been developed, steps have been taken with recent new public facilities/project construction to meet green building standards, such as the inclusion of geothermal systems for the new 9th elementary and 4th middle school designs, and the EarthCraft Home certification of houses in OHCD's Ironbound Square project. Most recently, County staff has begun working to achieve LEED Silver certification for the new Police Department and the Warhill Gymnasium currently in the design phase.

As described in Section 4 above, many localities have developed green building and design policies and regulations not just for public facilities, but for private development within their borders as well. James City County currently does not have a comprehensive green building policy or regulation for private development, but, as described below, some steps have been taken to encourage green building, or certain aspects of it.

B. Zoning Ordinance

The County's zoning ordinance currently contains one provision to encourage green building. In the Cluster overlay section of the ordinance, applicants can get a density bonus of 0.5 dwelling units per acre for "superior layout and quality design which incorporates environmentally sensitive natural design features such as preservation of scenic vistas, preservation of natural areas as suggested by the Natural Areas Inventory, protection of wildlife habitat corridors, the creation of buffer areas around RMA wetlands, and sustainable building practices as referenced in *The Sustainable Building Sourcebook* from the City of Austin's Green Building Program, or the *Sustainable Building Technical Manual* by the United States Department of Energy. (This section of the ordinance was last amended in 1999.)

The Villages at Whitehall development is an example of a development that used this provision to help them achieve their desired residential density. This development committed in a proffer to incorporating sustainable building practices in their design guidelines. Staff and the Planning Commission's Development Review Committee (DRC) reviewed the sustainable building language when the design guideline document was submitted.

C. Legislative Cases (Rezoning and Special Use Permits)

There have been a number of other cases in recent years that have committed via proffers or Special Use Permit (SUP) conditions to green building, not in order to achieve the Cluster density bonus available in the ordinance, as described above, but to help meet the expectations of staff and elected and appointed officials regarding the environmental protection development standards of the Comprehensive Plan. Two projects have committed to meeting LEED standards: the Stonehouse developers committed to a LEED certified 18,000 square foot Amenity Center (not yet designed or constructed), and the Prime Outlets expansion, which was approved by the Board of Supervisors with a green building SUP condition, recently achieved LEED Certified status (currently the only LEED certified structure in James City County).

Other developers have committed to certain aspects of green building and design. A prominent example is the Healthy-E-Communities company which has developed a number of affordable and mixed-cost residential projects in the County. As an example, the developer included in his proffer set the following two proffers for the Chestnut Grove rezoning:

- a) **Energy Efficient Homes.** All the townhouses shall be certified by a HERS rater to meet or exceed the Energy Star Certification. Each ENERGY STAR qualified new home must achieve a HERS score of at least 86. A copy of the HERS Energy Star Certification for each unit, once available, shall be provided to the Director of Planning.
- b) **Green Building/Sustainable Materials.** The developer shall incorporate the use of "green" building practices and materials in each unit in the development as follows: paints low in volatile organic compounds ("VOC"), carpets certified by the Carpet and Rug Institute to be free of formaldehyde, low VOC sub-flooring, built-in dehumidifiers, transfer grills in each bedroom for balanced heating and cooling, value engineered framing, engineered lumber, and cellulose insulation. These items shall be shown on the architectural drawings for each unit, and shall be approved as part of the building permit review and inspection process.

While green building conditions or proffers such as those described above have been developed on a case by case basis, certain green building and design-related items have been consistently applied to legislative cases due to adopted Board policies or ordinances. One of these is water conservation measures that apply to water efficient landscaping, irrigation systems, and indoor appliances. Another of these is the use of stormwater management criteria associated with adopted watershed master plans. An important consideration for County staff with regard to conditions and proffers is the ability of staff to verify and enforce compliance with the item in question; depending on the wording, green building related proffers can present challenges in terms of staff expertise and resources. As a final note, the draft 2009 Comprehensive Plan includes commitment to LEED (or similar or successor programs) among the examples of enhanced environmental protection in the Land Use Section's Residential Development Standards, and also includes as an Action that the County will conduct a sustainability audit of ordinances and policies as a lead-in to a comprehensive update to the Zoning Ordinance.

D. Housing and Community Development Activities

On another front, James City County does currently offer some programs that help meet green building and design related goals (weatherization, etc.) for existing buildings. These programs are administered through the County's Office of Housing and Community Development and include Indoor Plumbing/Housing Rehabilitation, Community Development Block Grants, and Emergency Home Repair. In 2007 the Office of Housing and Community obtained a grant from

the Enterprise Green Communities and conducted a Green Building and Sustainable Design for Affordable Housing Workshop. This workshop included a presentation by Earthcraft of Virginia and was attended by 33 participants including representatives of nine local builders. Following this workshop OHCD issued a request for proposals for builders to construct single family homes in the Ironbound Square Redevelopment area. The RFP specified these single family homes were required to be built to Earthcraft certification standards. Since then eight Earthcraft certified homes have been sold in Ironbound Square and the number of Earthcraft certified local builders has increased significantly.

E. Education and Outreach

Finally, on the education and outreach front, General Services staff are currently working on an environmental sustainability section to add to the County's web site. These pages are in draft form and are currently under review by the County's Green Team. These pages will be similar to the Frederick County, MD site in that they will provide a consolidated picture of the programs and activities dedicated to sustainability in county government and in the community.

6. Sub-Committee Recommendations

A. Finance Committee

I. Goals

To obtain County-wide reductions in resource use by stimulating improvements to existing residential, institutional, and commercial buildings, and to appropriately “raise the bar” for new construction to achieve a higher level of performance and resource efficiency.

It is the intent of these recommendations to foster these changes in such a way as to obtain the maximum impact/maximum improvements in performance at the least cost, and to stimulate a widespread movement to improve the performance of buildings in the County. We affirm that these improvements have the potential to improve quality of life for County residents in their homes and places of work, while reducing costs, stimulating local business, and increasing local tax revenues.

II. The Nature and Types of Incentives

What motivates us to act the way that we do, or to change our behavior patterns? It could be argued that our lives are largely energized by various kinds of incentives. These could be categorized into two basic types of incentives, commonly known as the “carrot” and the “stick”. Positive (or carrot) incentives motivate us by reward, and negative (or stick) incentives motivate us by the desire to avoid their negative effects. In this context, things like tax credits, savings on our energy bills, or availability of grants or stimulus funds are positive financial incentives that help motivate us to commit to retrofit our buildings for energy conservation. Non-financial positive incentives might include recognition for actions taken, or the good feeling that comes from taking action to reduce our environmental impact. Negative financial incentives might include the monthly impact of high energy costs, while other negative incentives that might motivate us to action might include everything from disapproval from friends or family to having to comply with tighter regulations governing our energy or water use. We all know how our driving habits by the negative incentive of skyrocketing gas prices in 2008.

Another type of positive incentive that can be quite helpful in motivating action toward a desired goal is information. Often people have a desire to make changes, but just don’t know how to go about making those changes, or evaluating whether it makes sense for them to do so. Most people may not have enough time or the motivation to do the research to determine whether it makes sense (for example) for them to change the lightbulbs in their house to fluorescent bulbs, or to spend the money required to weatherize their house. It is therefore helpful if impartial information can be provided that both helps people decide whether these improvements make sense, and if so, who can help them to make these improvements, and how they can pay for

them. It is therefore helpful not only to educate, but to provide simple steps that can be taken for people to be able to make these changes.

III. Incentives

We have attached to this report a summary of positive financial incentives that are available for homeowners and for commercial building owners. This is not an exhaustive list, but a starting point that may highlight some resources that people may not have been aware of. We believe that it still remains for the County and for citizens of the County to take things to the next step – using these incentives and other creative strategies to demonstrate to others that it is possible for them to afford to renovate their homes and businesses to improve energy and resource performance.

With the development of a “toolkit” of financial incentives, the intent is to provide practical pathways for people to use to make changes to their own homes and businesses by:

1. Demonstration – Fostering pilot projects that will demonstrate what can be done, and how it was accomplished. This could begin with an energy audit, and recommendations on how to make improvements, and then be followed up with obtaining financing to make the changes. Once the improvements are complete, the energy rater would follow up to quantify the level of performance improvement, and to demonstrate the energy/water savings.
2. Resources – Recruiting partners and resources that can help people accomplish needed changes. These resources will range from energy raters/auditors to banks willing to provide financing, to weatherization contractors, to working with the state to obtain block grant or weatherization funding from the Federal Government.
3. Big Picture changes – Working at the larger scale to help bring about policy changes that can “change the game” and speed the scope of these conservation improvements. This could include getting the Mazria 14x Stimulus Plan (see <http://www.iclei.usa.org/action-center/financing-staffing/14x-stimulus-a-plan-for-state-and-local-governments>) implemented locally to provide funds to “buy down” mortgage interest rates for those wanting to do energy improvements. This could also include working at the state level to foster a policy at Dominion Power of investing in conservation measures vs. building new powerplants. It could also include advocating for state incentives to foster adoption of solar, wind, and geothermal technologies, including use of net metering. Another possible program that could bring benefit to our citizens is the solarPV program citizenre REnU (renu.citizenre.com) program which would install solarPV systems on peoples houses.
4. Prioritizing Buildings for Renovation – Survey and identify buildings and citizens that would most benefit from improvements that would reduce their energy and water costs. Take the initiative to facilitate improvements with citizens who own these facilities and would be responsible partners.
5. Education – Communicate with and help motivate our citizens to pursue making needed changes to their homes and places of business. Tell the stories of success. Help people understand the tools/resources that are available to them.

See the attached summaries of incentives available to homeowners and businesses (**Attachments #1 and #2**). The next section is the Finance Committee's initial recommendations for County action to address/impact the goals stated above.

IV. Recommendations

Since our buildings consume 70% of the nation's electricity, use 12% of our water, and generate 30% of the nation's greenhouse gas emissions, it only makes sense to focus our attention on improving the performance of these buildings, if we want to have an impact upon the problem. Since existing laws and laws that will soon be enacted are addressing the energy and resource use of future construction, and since the biggest "offenders" in the three categories mentioned above are the older buildings in our community, it makes sense that we focus our efforts on finding ways to impact the efficiency of these existing structures. For this reason, the Finance Committee has developed a series of initial recommendations to pursue in attempting to impact the problem. We recommend the following:

1. Establish a baseline of energy and resource use in the community including a greenhouse gas emissions baseline, using ICLEI CACP Software. By establishing a baseline of existing performance in our community, we will know how we compare to other communities, and will have the ability to set goals for improving our performance.
2. Develop partnerships with Virginia Power and Virginia Natural Gas to better understand utility usage patterns and where improvements could have the biggest impact. Survey the properties in our community to supplement findings from the utility partners.
3. Establish specific goals to impact the energy and resource use and the greenhouse gas emissions of our community, and develop strategies to implement to achieve the goals.
4. Consider creating a County position to facilitate the achievement of these goals, and to begin to seek funding and partnerships to implement them. Consider also having an appropriate citizen advisory/working board to help and work with this County coordinator
5. Develop a partnership with William and Mary to take advantage of the benefit that this could bring to both the County and the College.
6. Partner with the City of Williamsburg to develop and implement these initiatives.
7. Develop a "toolkit" of evaluation, financial, and rehabilitation strategies to use in rehabilitation of both residential and commercial properties for improved performance.
8. Identify local expertise that can be involved in developing and implementing solutions. Look for ways to develop additional local partners in order to stimulate local businesses, and develop local expertise. Work with TNCC for "green jobs" training where appropriate.
9. Develop partnerships with local financial institutions and corporate citizens to assist in implementing rehabilitation strategies.
10. Seek stimulus and other grant funding to help in implementing the rehabilitation goals of the Community.

11. Consider partnering with Energy Star to sponsor a Home Performance with Energy Star program, which would train local contractors to provide comprehensive energy audits and then implement energy improvements under the oversight of the program. (This is the program that is currently being implemented in Charlottesville, and has the potential to create “market transformation” within a community, and radically impact county energy use).
12. Develop relationships with other communities that are attempting to similarly impact their resource use (such as Charlottesville) to share lessons learned.
13. As quickly as possible, implement pilot rehabilitation projects that can become “posterchildren” for the impact that these rehabilitations can have. Carefully document before and after performance, and use these projects to help promote ongoing efforts.
14. Develop educational strategies to help people and businesses understand the nature of the problem, how it impacts them, and what they can do about it.
15. Develop a user-friendly website that becomes a resource to educate and inform our citizens and to tell the stories of what is being done to impact these problems. The website should also be a resource center for tools and strategies that people can use for themselves, along with appropriate links to other online resources that they can access for more information.
16. Develop partnerships with the Community Action Agency, the Redevelopment and Housing Authority, JCC Housing and Community Development, Housing Partnerships, and other local “players” to coordinate rehabilitation efforts, so as to have the maximum impact and avoid redundancy.
17. On a regular basis, reevaluate how we are doing against the indicators that were a part of the original baseline energy, resource and emissions study.

V. Funding Sought

There are quite a number of funding opportunities available at the current time, including several possible streams of funding that stem from the ARRA (American Recovery and Reinvestment Act). The Finance Committee has made an application to EPA’s Climate Showcase Communities for funding to renovate houses for energy efficiency in concert with a project that JCC’s Housing and Community Development is undertaking to purchase and renovate foreclosed properties in the County.

VI. Conclusion

Due to the nature of the resource challenges that face us as a nation in the long term, it is important that we take immediate steps to help our citizens transform the homes and businesses in which we spend the majority of our lives. When completed, the impact of these energy efficiency retrofits will be immediate – not only improving quality of life, but putting money back in the pockets of our citizens, while stimulating our local economy with the jobs that this work will create. There is no reason why James City County and the City of Williamsburg cannot take a place of leadership in the nationwide movement to “green” the buildings in which we live and work every day. There has never been a better time to commit to make an impact

upon this problem, when the tools to make our efforts successful lie right around us and wait for us to take the initiative. It only remains for us to have the courage to make the commitment to really pursue them.

B. Housing Committee

The Housing Subcommittee of the Green Building Round Table reviewed the need and potential for incorporating green building improvements to existing residential properties in James City County. The Committee concluded that, although the County's housing stock is relatively new, maintenance and renovation of existing homes provide significant potential for improving the resource efficiency of residential property in the County. Potential actions to encourage "green" improvements to existing residential property include:

- Continue the existing practice of including energy audits and improvements in housing rehabilitation projects administered by the County's Office of Housing and Community Development.
- Seek to incorporate, where economically feasible, the comprehensive EarthCraft Single Renovation Program designed to achieve a 30% or greater increase in energy efficiency and resource efficient practices in major housing rehabilitation projects administered by the County's Office of Housing and Community Development.
- Assist the Williamsburg-James City County Community Action Agency, the designated administrator of the federally funded Weatherization Program, to fully utilize significantly increased funding provided by the ARRA economic stimulus program to weatherize and increase energy efficiency of existing homes occupied by lower income households within James City County.
- Seek grant funding available from the ARRA economic stimulus program and other government, private, and non-profit sources to develop education, outreach, and financial incentive programs to promote energy audits, analysis, and green energy efficiency home improvements for a broad range of County homeowners.
- Publicize, through providing information to the media, the beneficial results of green energy efficient housing weatherization, rehabilitation, and renovation projects undertaken in the County.

C. Design and Construction Committee

The objective of the *Design and Construction subcommittee* was:

- to assess sustainable development practices including: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality and certifications (rating systems),
- To make recommendations to the Green Building Roundtable Group on potential JCC policy regarding sustainable development practices.

Recommendations are based on discussions among group members, presentations to the Green Building committee, review of existing rating systems, and green building policy studies conducted by other Virginia jurisdictions, and green building programs and policies adopted by other Virginia jurisdictions. These jurisdictions include: Arlington County (ARL), the City of Alexandria (ALEX), Fairfax County (FAIRFAX), the City of Falls Church (FALLCHURCH), the city of Leesburg (LEESBURG), Loudoun County (LOUDOUN), Prince William County (PRINCEWIL), Spotsylvania County (SPOT), the City of Charlottesville (CVILLE), Albemarle County (AMARLE). Early in the assessment process, subcommittee made the following qualifying decisions:

1. The JCC green policy program should recognize limitations associated with the Dillon Rule and is, therefore, best achieved through the use of incentives, education, and a positive example as exhibited by James City County in the development of public projects.
2. JCC should utilize existing green building rating systems as a benchmark, rather than try to design its own rating system.
3. Several Virginia jurisdictions have adopted or are in the process of adopting policies, implementing programs, and/or incorporating green building practices into the zoning ordinance or as part of an energy efficiency program. Many jurisdictions have a green building policy regarding Public Buildings and Facilities. The efforts of these other Virginia jurisdictions, should be utilized, rather than repeated. One valuable resource was a recent report prepared by the City of Alexandria entitled: "Green Buildings in Alexandria Policy Recommendations" January 8, 2009 (revised February 5, 2009). Appendix 5 "*Regional Green Building Policies and Programs Overview: COG Members*" (attached) summarizes the green building policies and programs adopted by jurisdictions within the greater Washington DC metropolitan area.
4. The subcommittee assembled a survey list of green policy and program elements from these other jurisdiction and subcommittee discussions, surveyed the subcommittee members and concurred that only items with a *majority* vote would be passed on as recommendations to the JCC Green Building Roundtable.

The following is a list of typical elements and/or characteristics of policy programs within Virginia jurisdictions:

1. Statement of Green Building Benefits – Mission Statement

2. Policy Statement with County-specific Environmental/Green Priorities
3. Establish a green building rating system as benchmark – but allow for equivalent system
4. Public Facilities should set examples -
5. Set Development Standards, guidelines, checklists for
 - New construction
SUPs and Rezoning,
By-right (encourage and incentivize)
 - Sustainable renovations
6. Provide Incentives, Education, and Outreach for stakeholders
7. Third Party Certification
8. Flexibility – case by case determination for unique circumstances
9. Phased Approach
10. Innovation Encouraged
11. Monitor Progress and Re-evaluate for improvements

The subcommittee addressed characteristics 3 through 8 in order to make recommendations regarding the JCC sustainable building policies.

The third-party green building certification and rating systems currently being implemented within this area and/or other jurisdictions in Virginia are:

- **PUBLIC FACILITIES**
LEED – or equivalent (ALEX, ARL, FAIRFAX, LEESBURG, LOUDOUN, PRINCEWIL)
Green Globe – or equivalent
Energy Star
- **RESIDENTIAL**
LEED – or equivalent
Earthcraft Virginia – or equivalent
Energy Star (Energy Efficient Remodels – CVILLE, AMARLE, ALEX, ARL, FAIRFAX, LEESBURG, LOUDOUN, PRINCEWIL)
NAHB Model Green Home Building Guidelines – ICC-700-2009
- **COMMERCIAL**
LEED – or equivalent
Energy Star

The Energy Star system is being utilized in several jurisdictions to implement county-wide or city-wide energy efficient building renovation programs. This system seems to be a cost-effective and well-developed system with third party energy audits for building renovations; however, site elements such as landscaping, LID features, etc. are not addressed.

For new construction, this committee recommends utilizing EarthCraft and LEED rating systems as the benchmark rating systems with enough flexibility to allow innovation and alternative equivalent systems. EarthCraft is recommend for single and multifamily units 3 stories or less. LEED is recommended for Subdivisions, Multifamily units (3 or more stories), commercial properties, and public facilities. These two rating systems include several important key features:

- They are comprehensive with respect to sustainable development practices for site design, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality.
- They require a systematic and integrated design and implementation process.
- They require third party certification.
- They have successful track records and trained/skilled professionals within Virginia jurisdictions.

One should note; however, that with respect to sustainable site design practices such as LID, Chesapeake Bay Ordinances, and the Better Site Design initiatives currently practiced and/or enforced in JCC, these ratings systems should be consider complimentary rather than all-inclusive.

Based on the results of the subcommittee survey, the majority of subcommittee members concurred with the following policies for the private sector development:

- Develop a checklist that tracks green building/sustainable development practices. ALEX (9Y)
- New developments required to complete LEED or equal assessment checklist explaining how the development will voluntarily comply with LEED or equivalent. ALEX (6Y,3N)
- Ongoing public education to encourage the implementation of green building practices. Much of this is to be accomplished by links to appropriate web sites. JCC will consult with EarthCraft or equivalent organization for such sites. ALEX (9Y)
- New Development: JCC to develop incentives, appropriate standards, submission requirements and a review process for green development. ALEX (9Y)
- Existing Development: JCC to develop a model program with audits, incentives, etc. for “greener” existing building and sites. (6Y,3N)
- Density incentive of 0.15 to 0.35 Floor Area Ratio for LEED or equal certification, ranging from Certified to Platinum. Bond to ensure compliance. ARL (6Y,3N)
- Create a LEED or equivalent scorecard for site plans. ARL (7Y,2N)
- Develop Energy Star or equivalent requirement for appliances and fixtures in multifamily buildings. ARL (7Y,2N)
- Create a Voluntary Green Home Choice program based on EarthCraft or equivalent. ARL (9Y)
- Comprehensive Plan amended to incorporate support for green building practices (9Y)
- Energy Star or equivalent home designations for residential development proposals at the high end of the Comp Plan density range. FAIRFAX (7Y,2N)

- Policy plan support for better site design, LID's and energy/water conservation. FAIRFAX, PRINCEWIL (8Y)
- Proffer commitments during zoning process for a variety of green building and LID practices. FAIRFAX (8Y,1N)
- LEED, Earthcraft or equivalent projects will have expedited review of building permits and site plans. (9Y)
- The cost of LEED, EarthCraft or equal certification will be offset by reduced cost of JCC permits, fees, tap fees, etc. (7Y,2N)

Please note the jurisdictional origin of the policy is noted in CAPS at the end of each statement; the subcommittee vote tally is provided in parentheses. The following italicized policies statements were not supported by a clear majority of the subcommittee members.

- *\$0.03/SF contribution to Green Building Fund for projects not seeking LEED or equal certification. ARL (4Y,5N)*
- *Comprehensive Plan linkages established between the incorporation of green building/energy conservation practices and the attainment of certain Comprehensive Plan Options, planned uses, and densities/intensities of development. FAIRFAX (5Y,4N)*
- *LEED certification or equivalent for nonresidential and multi-story residential zoning proposals in growth centers seeking the high end or overlay of the planned density/intensity range, a Comprehensive Plan Option, a change in used from what would be allowed as a permitted use under existing zoning. FAIRFAX(5Y,4N)*

The subcommittee members agreed that our public facilities and programs should set an example for the private sector. In addition, the majority of subcommittee members support the following policies statements regarding JCC public programs and facilities:

- Require analysis procedures for LEED (or equivalent) feasibility for facilities 5,000 SF or greater. ALEX (9Y,1N)
- Require procurement practices for green architectural/engineering services. ALEX (9Y,1N)
- Require LEED (or equivalent) registered projects in planning and construction for facilities 12,000 SF or greater. ALEX (9Y,1N)
- Require Low Impact Development demonstration projects. ALEX, FAIRFAX, FALLSCH(7Y,1N)
- Require public schools to incorporate energy conservation and green measures. ALEX(10Y)
- For Existing Development: JCC to develop model program with audits, standards, etc. for "greener existing buildings and sites. (9Y,1N)
- Internal working policy supporting sustainable practices. ARL, FALLSCH, LEESBURG, LOUDOUN, PRINCEWIL(10Y)
- Demonstration green roof on JCC building. ARL, ALEX(7Y,3N)
- Sustainable development policy for Capital Projects adopted by the BOS. FAIRFAX(9Y,1N)

- Goal of LEED Silver certification for JCC projects greater than 10,000 SF in size. FAIRFAX(8Y,2N)
- Goal of LEED certification or equal for JCC projects 5,000 and 10,000 SF in size. FAIRFAX(8Y,2N)
- Energy management control systems for all new JCC buildings and retrofits. FAIRFAX, LOUDOUN, PRINCEWIL(9Y,1N)
- JCC to implement a public relations campaign to inform the public of the all “Green” accomplishments(10Y)

The following italicized policies statements were not supported by a clear majority of the subcommittee members:

- *Require participation in USGBC or equal. ALEX(6Y,4N)*
- *Formalized policy requiring LEED Silver certification or equivalent of all public buildings over 5,000 SF in development. (6Y,4N)*

In summary, the subcommittee suggests that the best approach for a JCC Green Building Program is to encourage, rather than mandate, sustainable development by the use of incentives, education, and a positive example as exhibited by James City County in the development of public projects. A list of possible incentives and potential issues associated with the incentives are provided as an attachment (**Attachment #3**). Committee members particularly encourage the incentive approach for small commercial and residential projects. However, the committee suggests that when the public facility, rezoning, or SUP project involves a building over a certain size (for instance, 10,000 sf), LEED certification is justified and should be required.

D. Communications Committee

I. Communications Overview

The purpose of the Communications sub-committee is to actively engage with the community to promote green building practices (sustainability). The Communications sub-committee will provide an opportunity for the Roundtable to raise public awareness, gain support, engage community members, promote successes, deliver calls for action, and inspire behavioral change.

II. General Communications Strategies

To communicate effectively, the Green Building Roundtable Forum (GBRF) will address the following issues:

- The GBRF message
- The target audience
- How to reach the target audience

- What does your audience know and think now?
 1. What you would like them to know, think, and do?
 2. What are perceived benefits to sustainable development?
 3. What are perceived barriers of sustainable development?
 4. Why is it in the best interest of the target audience to take action?

III. Message

[To be added later once the GBRF determines what message is to be conveyed]

IV. Identifying the Target Audience

The first steps in conducting an outreach campaign are to identify the target audience, the message objective and the appropriate messenger or medium. Below is an outline of selected segments of populations along with suggestions on potential communications strategies that are generally effective for reaching out to that group.

The Communications subcommittee developed communications strategies that required no, or minimal at most, expenses to execute.

- ❖ County Employees
 - A valuable community source of information.
 - Web Site, TV 48, paperless messages (i.e. e-pamphlets), social networking, Green Team.
- ❖ Residential Sector
 - What are the questions, incentives, and options.
 - Home Owners
 - Renters & Landlords
 - Media releases, magnets, web site, TV 48.
- ❖ Business Sector
 - What is the methodology to incorporate green practices.
 - Large Scale Businesses
 - Small Scale Businesses
 - Greater Williamsburg Chamber and Tourism Alliance, media releases, social networking, partnerships.
- ❖ Youth
 - Higher Education
 - Social responsibility.
 - Concentration on “why to go green”.
 - Encourage input. Show we value their input.
 - Facebook, Twitter, YouTube, Web Site. Internal publication, i.e. Flat Hat, social networking.
 - Elementary and Secondary School Children
 - Already part of their culture.
 - Offer recycling at sports venues.

- “It’s the right thing to do” message.
- What is the county doing for me?
 - PTA, web site, media releases
- ❖ Retirement Community
 - Show that they can change and in doing so provide real leadership.
 - Connection with youth.
 - Social networking, media releases.
- ❖ Development Community
 - How do we encourage, incentivize and reward them?
 - Streamline permit process?
 - Eliminate regulatory review (DRC)?
 - How to reduce costs?
 - Quicker project Turnover – 5 projects in a month vs. 3 non-green projects.
 - What is the correct message to this audience?
 - Audience = Associations, i.e. Builders, Realtors. Suppliers, Architects, Engineers, Home Improvement Co., Surveyors.
 - Greater Williamsburg Chamber and Tourism Alliance, media releases, social networking, partnerships

V. Connecting with Target Audience

Getting your message out to local media can be one of the most effective ways of education the public and gaining the support needed for sustainable community efforts. Below is a sample press release and a list of local media resources.

Sample Press Release (excerpt)

FOR IMMEDIATE RELEASE Local Government and Business Partnerships on Outreach

Chicago, Illinois: The Chicago Green Office Challenge engages major property managers, building owners, and tenants in a friendly competition to significantly increase the environmental performance of buildings in the City’s central business district. Participants work to decrease energy consumption, increase their recycling rates, and find others ways to reduce their environmental impacts. The Challenge brings together the tools developed by key partners including the US EPA’s Energy Star program, the Building Owners and Managers Association, ICLEI – Local Governments for Sustainability, the Clinton Climate Initiative, and the US Green Building Council. Participants get to reap the benefits of lower energy bills as well as recognition from the Mayor in print and online media

VI. Media Type

- ❖ **Newspapers**
 - Virginia Gazette
 - Daily Press
 - Toano Norge Times

- Richmond Times Dispatch
- El Eco De Virginia
- Tidewater Hispanic
- ❖ **Online Newspapers**
 - wydaily.com,
 - Pilotonline.com
- ❖ **Magazines**
 - Next Door Neighbors
 - Williamsburg Health Journal
 - Inside Business
- ❖ **Radio**
 - The Tide 92.3 FM
 - WBach 107.9 FM
 - WMBG 740 AM
 - WHRV.89.5
 - WNIS790
 - WTAR 850 AM
 - KICK 106.1 FM
 - BOB 93.7
 - Eagle 97
 - JAMZ 103
- 2WD 101.3
- The Fox 106.9
- FM99 WNOR
- Extra 99.1 FM
- Radio Selecta 1050 AM
- ❖ **TV**
 - Channel 3 WTKR
 - Channel 10 WAVY
 - Fox 43
 - Channel 12 WWBT Richmond,
 - Channel 13 WVEC, Channel 15 WHRO
- ❖ **Government Publications**
 - Virginia Municipal League
 - Virginia Town and City
 - Update, Virginia Association of Counties
 - County Connections,
 - Ship's Log
 - FYI

VII. Community's Current Knowledge of Sustainable Development

By understanding what the community already knows about sustainable development will help the GBRF address key issues and close the knowledge gap. With our limited amount of resources the GBRF should focus on educating the community. Sustainable development is about avoiding wasteful practices; the GBRF will adhere to this concept by not wasting resources educating the community on issues they already know. Rather, we will be strategic in conveying and promoting our message.

VIII. Post GBRF Knowledge

Our communications efforts will focus on what we want our community to do. Communicating action and the means to act will simplify sustainable practices. The GBRF acknowledges that each audience segment has a different way of receiving information and different information that needs to be delivered. By avoiding a one-size-fits-all strategy, the segments will be more responsive to the message and more likely to act.

IX. Additional Resources

1. ICLEI, Local Governments For Sustainability Resource Guide
2. <http://jamescity/Departments/Communications/media%20list%20-%20feb.htm>

Attachment 1: Tax and Utility Incentives Available to Homeowners (Sept. 2009)

1. Virginia Natural Gas Incentives

- a. Free Programmable Thermostat
- b. Equipment Rebates (temporarily suspended – hope to reinstate them)
 - i. \$500 for a 90%+ AFUE Furnace
 - ii. \$500 for a tankless gas water heater (.82+ EF)
 - iii. \$150 for a tank type gas water heater (.62+ EF)
- c. Low Income Weatherization Program - Virginia Natural Gas has partnered with state certified weatherization agencies – including the Williamsburg/James City County Community Action Network to provide cost-effective energy efficiency measures for customers with an income below 175% of the federal poverty (\$38,588 for a family of 4).

Besides weatherization measures, the agency may determine that equipment and appliance repair or aid with appliance replacement is needed. Participants are asked to partner with the program to develop and carry out a household energy savings Action Plan. All efficiency measures and energy education services are provided free of charge to the customer.

Peninsula Residents (other than Hampton) should call the Williamsburg - James City County Community Action Network at (757) 229-9389.

2. Federal Tax Credits for Homeowners (<http://www.energystar.gov/taxcredits>)

- a. Tax Credit for 30% of the cost of materials (\$1,500 cap, and placed in service in 2009-2010 on a primary residence) for the following:
 - i. Insulation
 - ii. Windows & Doors meeting efficiency requirements
 - iii. Asphalt & Metal Roofing meeting energy star reflectivity requirements
 - iv. HVAC equipment meeting efficiency requirements
 - v. Non-solar water heaters meeting efficiency requirements
 - vi. Biomass stove meeting efficiency requirements
- b. Tax Credit for 30% of the Total Cost (no cost cap, and placed in service by 2016) for the following:
 - i. Geothermal Heat Pump Systems
 - ii. Solar Hot Water Systems
 - iii. Solar Photovoltaic Systems for power
 - iv. Residential Wind Power Systems
 - v. Fuel Cell and micro-turbine systems (limit of \$500 per ½ KW)

3. Renewable Energy Credits – Available through some solar and wind installers, these are available for at least solar hot water, solar PV, and wind systems, and provide an annual cash payment. Estimated payment for a \$8-\$9,000 residential solar hot water system is

\$800 annually (in addition to 30% tax credit on installation of system). One source for more information is: Solar Services, Inc. **(757) 427-6300**.

4. State Tax Exemption Holiday: From Friday, October 9 through Monday, October 12, 2009 Virginia's ENERGY STAR Sales Tax Holiday will take place. During the holiday, Virginians will be exempt from paying the state and local sales tax on ENERGY STAR qualified products that cost \$2,500 or less (products such as compact fluorescent light bulbs (CFLs), Ceiling Fans, Clothes washers, Dehumidifiers, Dishwashers, Programmable Thermostats, Refrigerators, and Room Air Conditioners).
5. Ongoing Virginia State Tax Deduction for certain Energy efficient appliances : 20% of the sales tax paid in purchasing heat pumps, water heaters, oil furnaces, air conditioning systems that meet certain efficiency standards, as well as clothes washers, room air conditioners, dishwashers, and standard size refrigerators that meet applicable energy star requirements. See website for details: <http://www.dmme.virginia.gov/DE/taxcredit.shtml>

Attachment 2: Tax and other Financial Incentives Available to Commercial Building Owners (Sept. 2009)

6. Federal Tax Deduction for Commercial Building Owners

(<http://www.energystar.gov/taxcredits>)

Businesses can take a tax deduction for new or renovated buildings by reducing the energy costs associated with three components—lighting system; building envelope; and heating, cooling and water heating equipment. Buildings must exceed the ASHRAE 90.1-2001 standard and be placed in service between January 1, 2006 and December 31, 2013 in order to be eligible. (See IRS Notice 2006-52 and IRS Notice 2008-40 for details) The deduction is available in two levels:

Buildings that save 50% or more of projected annual energy costs across all three system components are eligible for a tax deduction of \$1.80 per square foot.

Buildings that save a percentage of projected annual energy costs for one of the three components—building envelope (10% energy savings), lighting (20%), and heating & cooling (20%)—are eligible for a partial deduction of \$0.60 per square foot.

The organization that makes the expenditures is generally the recipient of the deduction, which can be taken in the year the building is placed in service. In the case of a public building, the designer may take the deduction. The building must be certified by a qualified individual (a licensed engineer or contractor) as meeting the energy cost savings goal.

7. Tax Incentives for Solar, Wind and Geothermal Systems: The incentives apply to solar and wind systems placed in service from January 1, 2006 until December 31, 2016 and to geothermal heat pump systems placed in service from October 3, 2008 until December 31, 2016. The incentives are worth 30% of the installed cost of the solar or wind system, and 10% of the cost of the geothermal system. The economic stimulus legislation also provides the option for businesses to take a grant from the U.S. Treasury Department during 2009 and 2010 in lieu of the investment tax credit. Credit Claimed on IRS Form 3468.

- a. **Tax Credit or Grant for Geothermal Systems:** Qualified geothermal systems are ground source heat pumps with related equipment used to produce, distribute, or use energy derived from a geothermal source. Commercial customers can get an investment tax credit of 10% of the installed cost, available through 2016. The ARRA legislation also provides the option of taking a grant in lieu of the credit, worth 10% of the installed costs for equipment placed in service during 2009 and 2010.
- b. **Tax Credits for Solar Systems:** Qualifying equipment will use solar energy to (1) generate electricity, or heat/cool or provide hot water to a structure, or (2) illuminate the inside of a building by means of fiber-optic distributed sunlight (tube systems and passive solar are not eligible). For more information visit www.seia.org. For solar water heating, systems must be certified for performance

by the Solar Rating Certification Corporation (SRCC) or a comparable entity endorsed by the state government in which the system is located. At least half of the energy used by the system to heat the water must be solar energy. Expenses for heating swimming pools or hot tubs are not eligible.

8. Renewable Energy Credits – Available through some solar and wind installers, these are available for at least solar hot water, solar PV, and wind systems, and provide an annual cash payment. Estimated payment for a \$8-\$9,000 solar hot water system is \$800 annually (in addition to 30% tax credit on installation of system).
9. Performance Contracting - This is starting to emerge as an option for retrofitting existing buildings to improve energy performance. A performance contractor will evaluate your building and propose to make improvements to your building envelope and systems, and will help obtain financing, with the payments to make the improvements to be paid for by improvements in energy performance that will be guaranteed by the contractor. This industry is somewhat in its infancy, but state energy performance contracts are in place now that allow governmental entities to avail themselves of this option, and George Mason University recently completed renovation of campus buildings using this form of contract with great success.

For State ESCO Forms/guidance, see

<http://www.dgs.state.va.us/DivisionofEngineeringandBuildings/DirectorsOffice/DEBContracts/EnergyPerformanceContracting/tabid/393/Default.aspx>).

For information on performance contracting at GMU, see

<http://facilities.gmu.edu/physicalplant/energy/pc/main.html>

Attachment 3: Green Building Design Incentives

The following list includes incentives that have been considered by communities looking to encourage green building or low impact design. The bulleted items below each incentive identify issues that should be considered before pursuing the incentive.

Increased Densities

- Allow greater residential densities with the implementation of techniques.
- With more sensitive design the land is able to manage more units.
- Potentially greater impacts needing mitigation.

Reduced Review Time / Expedited Review

- Commit to a priority status with a maximum time between receipt and review.
- Project may need special studies and reviews that must be identified early.
- Impacts to staffing resources and other project review schedules. Outside consultants could also be used to expedite.

Property Tax Reduction

- Reduce or waive property taxes for a given number of years.
- Lower service requirements result from lower impacts.
- Reduced revenues.

Reduced Application Fees

- Waive all or a portion of the submittal fees on projects.
- Due to lesser impacts to the community, lower fees are charged.
- Impacts to jurisdiction resources. May be offset by reduced habitat restoration and environmental costs

Public Recognition

- Emphasize projects on website, at applicable Board, PC and other (Wetland/Chesapeake Bay Board, etc.) and in utility mailers.
- Highlight the great development projects going on throughout the area & create public awareness.
- Staff resource impacts.

Dedicated Review Team

- Create a review team that is familiar with and dedicated to projects.
- Specialized team with technical expertise is necessary and more efficient assistance and review.
- Initial training of team members in techniques will be required in any event. Outside consultants could also be used - charged to applicant or paid for by jurisdiction.

Flexibility in Bulk, Dimensional & Height Restrictions

- Allow greater building heights and floor area ratios as well as reduced setbacks.
- Provides flexibility in overall site design. Allows reduction in building footprint. Addresses clustering needs.
- Consistency/compatibility with existing development and urban design goals.

Adjustments to the Required Parking

- Reduce parking requirements.
- Reducing parking is a technique for reducing impervious surfaces as well as a way to encourage more projects.
- May conflict with other community objectives.

Lower Stormwater Inspection Fees

- Reduce charges when development meets thresholds.
- Lower impacts to system capacity, so lower fees are appropriate.
- Reduced capital funds. Compensate by raising charges for conventional developments.

Fee Structure

- Develop a fee structure that is based on impervious surface. Fee reduction will be awarded based on implementation thresholds

Reduced Requirements for Conventional Stormwater Management

- Allow developers to reduce the amount of conventional stormwater management when they implement techniques. Example, if roof runoff is re-used onsite, or infiltrated on-site, the development can remove the roof square footage in the calculations for determining detention pond size.

Jurisdiction-Furnished Materials Program

- Jurisdiction could supply materials (pervious concrete, plants, soil, mulch, compost, etc) to offset development costs on projects.

Attachment 4: Green Buildings in Alexandria Policy Recommendations

Green Buildings in Alexandria: Policy Recommendations Appendix #5

Regional Green Building Policies and Programs Overview: COG Members

February 5, 2008 (with updates for Fairfax County)

Jurisdiction and Green Building Contact Information	Policies for Public Facilities	Policies for Private Development
VIRGINIA		
<p>City of Alexandria, VA www.alexandriava.gov</p> <p>Jeremy McPike jeremy.mcpike@alexandriava.gov</p> <p>Erica Bannerman erica.bannerman@alexandriava.gov</p>	<p>Green Building Policy for City facilities. Requires:</p> <ul style="list-style-type: none"> • Analysis procedures for LEED feasibility for facilities 5,000 or greater • Staff green building training • Procurement practices for green Architectural/ Engineering services, buildings maintenance, and supplies • LEED-registered projects in planning and construction. 12, 000 sq ft green roofs. • LID demonstration projects • Participation in Energy Star, Rebuild America, and the USGBC. • Public Schools incorporate energy conservation and green measures <p>Green public projects in construction include TC Williams High School - LEED certification pending (Awarded Virginia Sustainable Building Network's Green Innovation Award), and the Charles Houston Recreation Center.</p> <p>LEED registered projects include the new DASH Bus Facility, Police Department, and Human Services under LEED Existing Building.</p> <p>A 5,000 square foot green roof and 5,000 square foot bioretention area will be installed at Coral Kelly Magnet Elementary School by 2009.</p> <p>Additionally, the Station at the Yard project is a mixed-use building with a LEED registered fire station and retail for the first floor and four stories of EarthCraft affordable/ workforce housing units above.</p>	<p>Checklist that tracks green building/ sustainable development practices</p> <p>Contractors of new developments required to complete LEED assessment checklist explaining how the development will voluntarily comply with LEED.</p> <p>Private Development includes the first LEED - Gold certified condo Project in Virginia at the Cromley Lofts.</p> <p>Ongoing public education to encourage the implementation of green building practices.</p> <p>Planning staff is developing possible incentives, appropriate standards, submission requirements, and the City's review process for green buildings.</p>

Jurisdiction and Green Building Contact Information	Policies for Public Facilities	Policies for Private Development
<p>Arlington County, VA www.arlingtonva.us</p> <p>Joan Kelsch jkelsch@arlingtonva.us</p>	<p>Internal working policy supporting sustainable practices. Formalized policy requiring LEED Silver certification of all public buildings over 5,000 sq ft. in development.</p> <p>Demonstration green roof on County office building.</p> <p>Green public buildings include LEED certified Langston Brown School and Community Center; LEED certification pending for Walter Reed Community Center, the Parks Operations building, and Shirlington Library.</p>	<ol style="list-style-type: none"> 1. LEED Scorecard for site plan projects. Expectation 26+ credits. Staff oversight. 2. Density Incentive of .15-.35 FAR for LEED certification (ranging from certified to platinum). Bond to ensure compliance. 3. \$0.03/sq ft contribution to Green Building Fund for projects not seeking LEED certification. 4. Energy Star requirement for appliances and fixtures in multifamily buildings. 5. Voluntary Green Home Choice program based on EarthCraft.
<p>Fairfax County, VA www.fairfaxcounty.gov</p> <p>Noel Kaplan Department of Planning and Zoning Noel.Kaplan@fairfaxcounty.gov</p>	<p>Sustainable Development Policy for Capital Projects adopted by Board of Supervisors, February 2008.</p> <p>Goal of LEED silver certification for county projects greater than 10,000 square feet in size; project teams encouraged to meet LEED ratings beyond Silver if practicable.</p> <p>Goal of LEED certification for projects between 2,500 and 10,000 square feet; project teams encouraged to attain LEED Silver level if practicable.</p> <p>Highest LEED level practical for smaller projects.</p> <p>Energy Management Control Systems into all new county buildings and retrofits.</p> <p>LID demonstration projects.</p>	<p>Comprehensive Plan Amended in December 2007 to incorporate support for green building practices.</p> <p>Plan linkages established between the incorporation of green building/energy conservation practices and the attainment of certain Comprehensive Plan Options, planned uses, and densities/intensities of development.</p> <ul style="list-style-type: none"> - LEED certification or equivalent for nonresidential and multi-story multifamily residential zoning proposals in growth centers seeking: <ul style="list-style-type: none"> - The high end or Overlay Level of the planned density/intensity range; - A Comprehensive Plan Option; - A change in use from what would be allowed as a permitted use under existing zoning. - ENERGY STAR Qualified home designations for other residential development proposals at the high end of the Plan density range. <p>Policy Plan support for better site design, LID, and energy/water conservation</p> <p>Proffer commitments during zoning process for variety of green building and LID practices.</p> <p>Ongoing public education to encourage LID techniques, including LID</p>

Jurisdiction and Green Building Contact Information	Policies for Public Facilities	Policies for Private Development
City of Falls Church, VA	<p>City Council 2007 Vision and Strategic Plan promotes green building and LID. Directs staff to create green building program for public and private buildings.</p> <p>2008 Comprehensive Plan incorporates policies for green building.</p> <p>Pursuing use of recycled carpets in City building renovations. Energy management system in City Hall.</p> <p>LID demonstration project in City Hall area.</p>	<p>City Council 2007 Vision and Strategic Plan promotes green building and LID. Directs staff to create green building program for public and private buildings.</p> <p>2008 Comprehensive Plan incorporates policies for green building.</p> <p>Successful negotiations for LEED and green roofs on four private projects.</p>
Town of Leesburg, VA	<p>Leesburg Town Plan promotes energy efficiency and use of green building standards such as LEED</p>	<p>Leesburg Town Plan promotes energy efficiency and use of green building standards such as LEED</p>
Loudoun County, VA www.loudoun.gov	<p>Green building practices currently being implemented. Energy efficiency and green design in current RFPs. ENERGY STAR appliances, tankless water heaters, dual flush toilets, waterless urinals, programmable thermostats, and ultraviolet lighting in ductwork are a County standard.</p> <p>LEED accredited professionals on staff. Energy manager on staff since 2001.</p> <p>Energy accounting software in use for public buildings. Undertaking lighting retrofits.</p>	<p>Countywide Housing Policies, CPAM 2007-0001 - Adopted September 18, 2007</p> <p>Guiding Principles Policies - The County encourages development that utilizes energy efficient design and construction principles, promotes high performance and sustainable buildings, and minimizes construction waste and other negative environmental impacts.</p> <p>Mixed Use Business Zoning District - Adopted December 19, 2007</p> <p>Incentive Program - The Board of Supervisors may grant an increase of 0.1 FAR above the maximum permitted floor area ratio when at least 20% of the total floor area of the district achieves the Leadership in Energy and Environmental Design (LEED) Certification at the Gold level.</p>
Prince William County, VA www.pwcgov.org Lou Ann Purkins lpurkins@pwcgov.org	<p>Internal policy for green building under consideration</p> <p>Recently completed green police station and development services building to meet LEED certification</p> <p>Energy management control systems being implemented in all new buildings and building upgrades</p>	<p>Green building for private development under review by senior staff</p> <p>Amendment to the Environmental Chapter of the Comprehensive Plan for green building to be considered during 2008 update.</p> <p>Policy support for better site design, LID, and energy/water conservation in the</p>

Jurisdiction and Green Building Contact Information	Policies for Public Facilities	Policies for Private Development
		Comprehensive Plan. Proffer commitments and SUIP conditions negotiated during zoning process for a variety of green building and LID practices.

Jurisdiction and Green Building Contact Information	Policies for Public Facilities	Policies for Private Development
MARYLAND		
<p>City of Gaithersburg, MD www.gaithersburgmd.gov</p> <p>Erica Shingara eshingara@gaithersburgmd.gov</p>	<p>Master Plan Environment Element states following goals and strategies:</p> <ul style="list-style-type: none"> • Municipal facilities, City funded projects, and infrastructure projects be constructed, renovated, operated, maintained and deconstructed using green building, LID, waste management, and conservation landscaping principles and practices to the fullest extent possible. • Incorporate sustainable requirements in bid requests for new building projects or renovations, when feasible, and utilize construction consultants with green experience. • Perform energy audits of existing City facilities and implement energy retrofits when appropriate. <p>Green building education of City officials and staff</p> <p>City considering legislation requiring LEED Silver certification for municipal buildings.</p> <p>New LEED certified Youth Center</p>	<p>Green building education and outreach to residents, and development community.</p> <p>Partner in M-NCPPC Going Green at Home program with M-NCPPC.</p> <p>Green residential building code standards in development.</p> <p>Development Review: Requires new commercial, institutional, or multi-family development to complete and submit a LEED checklist as part of the site plan and building permit application process.</p> <p>Commercial Incentive Program with tiered incentives discounting City building permit fee according to levels of LEED certification:</p> <ul style="list-style-type: none"> • LEED Platinum: 50% refund; • LEED Gold: 40% refund; • LEED Silver: 30% refund; and • LEED Certified: 20% refund.
Greenbelt, MD	City requires LEED Silver certification for public buildings	
<p>Montgomery County, MD www.goinggreenathome.org</p> <p>Marion Clark, M-NCPPC marion.clark@mncppc-mc.org</p>	<p>Green Building Bill of 2007 requires all new County buildings, additions and major renovations greater than 10,000 square feet, and all building projects receiving County funding of 30% or more meet LEED Silver and Energy Design Standards. Includes life-cycle-cost analysis of alternative systems and components. Required written certification of</p>	<p>Green Building Bill of 2007 requires that all private commercial and multifamily development projects over 10,000 sq ft meet LEED certification or equivalent. The regulation to implement this Montgomery Green Building Law has been adopted.</p> <p>Senior staff developing green building implementation plan,</p>

Jurisdiction and Green Building Contact Information	Policies for Public Facilities	Policies for Private Development
	<p>compliance to energy standards.</p> <p>The regulation to implement this Montgomery Green Building Law has been adopted.</p> <p>Senior staff developing green building implementation plan.</p> <p>Energy conservation practices in all County buildings</p> <p>The Green Building Program for Montgomery County Public Schools (MCPS) works with students, staff and the community to establish MCPS as a model for sustainable school design and operations.</p> <p>www.Schools2Green.org</p>	<p>including tax incentive package.</p> <p>Going Green at Home outreach and education program for homeowners, builders, and contractors.</p> <p>Master and Sector Plans language encourages green building technology. White Flint and Glenmont redevelopment piloting LEED for Neighborhoods standard</p> <p>Development Review promotes and requests use of high performance measures.</p>
Prince George' County, MD	<p>General guidelines for environmentally sustainable development. Green building program launch in mid-2007.</p> <p>Low VOC paint purchasing for all public buildings.</p> <p>Energy Manager to be hired.</p> <p>Energy audits of County buildings underway.</p>	<p>General guidelines for environmentally sustainable development. Green building program under development.</p>
<p>City of Rockville, MD</p> <p>www.rockvillemd.gov</p> <p>Nate Wall</p> <p>nwall@rockvillemd.gov</p>	<p>Environmental Commission studying green building programs from other jurisdictions, and will make recommendations to Mayor and City Council for program.</p>	<p>Environmental Commission studying green building programs from other jurisdictions, and will make recommendations to Mayor and City Council for program.</p> <p>City currently has a moratorium in place on most new construction activities. Would like to have green building program in place before moratorium expires in December 2007.</p>

Jurisdiction and Green Building Contact Information	Policies for Public Facilities	Policies for Private Development
DISTRICT OF COLUMBIA		
<p>Washington, D.C.</p> <p>www.dc.gov</p> <p>Chris Shaheen,</p> <p>chris.shaheen@dc.gov</p>	<p>Green Building Act of 2006 legislates green building practices for government buildings:</p> <ul style="list-style-type: none"> Effective immediately, residential buildings over 10,000 sq ft and all commercial projects that result from lease of public 	<p>Green Building Act of 2006 legislates green building practices for private buildings:</p> <ul style="list-style-type: none"> In January 2009, all commercial buildings over 50,000 sq ft must complete LEED checklist as part of permit process In January 2010, commercial

Jurisdiction and Green Building Contact Information	Policies for Public Facilities	Policies for Private Development
DISTRICT OF COLUMBIA		
	<p>property through disposition must meet Green Communities or LEED Silver certification standards.</p> <ul style="list-style-type: none"> • Building projects first funded in FY08 budget, including interior renovations, residential, and commercial, must meet Green Communities or LEED Silver certification standards. • Starting in FY09 budget, all new construction or substantial improvement of projects receiving more than 15% of total costs through public financing must meet Green Communities or LEED certification standards. • District of Columbia building code to be updated to include green building practices <p>Energy efficiency, green power, and environmentally preferable purchasing.</p> <p>ENERGY STAR and green design included in RFP's.</p> <p>LID demonstration projects.</p>	<p>buildings greater than 50,000 sq ft and resulting from sale of public property through disposition must meet LEED certification standards</p> <ul style="list-style-type: none"> • In January 2012, all commercial buildings over 50,000 sq ft must meet LEED certification standard <p>Expedited permitting of green building projects before policy implementation date</p> <p>Office of Planning Sustainable resource guide for development community</p> <p>Ongoing energy efficiency and conservation programs:</p> <ul style="list-style-type: none"> • Free energy audits. • Renewable Energy Demonstration Project provides up to 50% of installation costs • District Solar Initiative • ENERGY STAR appliance and lighting rebates • Grants for small business energy efficiency measures • Support for energy efficiency/weatherization in low income homes and CDC projects
Anacostia Waterfront Corporation www.anacostiawaterfront.net	Draft green development standards for public and private development in review.	Draft green development standards for public and private development in review.

Source: Greening the Metropolitan Washington Region's Built Environment, 2007,
Metropolitan Washington Council of Governments
<http://www.mwcog.org/environment/greenbuilding/>
<http://www.fairfaxcounty.gov/news/2008/030.htm>

Attachment 5: Arlington County LEED Submission Requirements



LEED Permit Submission Requirements for Site Plans with LEED Conditions

All permits should be submitted 10 business days prior to the date of the needed permit. This allows for flexibility in the event additional backup documentation is needed. If the documentation submitted does not meet the intent and requirement of the LEED credit, the permit may be held until the needed documentation is completed.

Below is a general list of LEED documentation that must be submitted to DES (Joan Kelsch / Adam Segel-Moss) prior to issuance of the following permits or certificates of occupancy.

Clearing, Grading, and Demolition Permit

- Provide updated LEED scorecard and tracking spreadsheet showing that progress is being made on all credits.
- Obtain approval of the Construction Waste Management Plan as required by the site plan condition. If LEED credit(s) is being sought, the CWM Plan should meet LEED requirements.
- Submit the Green Building Fund Contribution if it pertains to your project.

Excavation Sheet piling and Shoring Permit

- Provide updated LEED scorecard and tracking spreadsheet showing that progress is being made on all credits.
- Provide a floor plan that indicates recycling storage/ collection plan;
- Confirm that a commissioning (Cx) agent is on board prior to any above grade work. If the Additional Cx credit is being pursued, confirm that the Cx agent is reviewing the drawings in the design phase.
- Provide confirmation that water and energy use reduction are being incorporated into the design to meet the required thresholds. Provide documentation showing that an energy model is being used to evaluate insulation, windows, HVAC systems, etc. to meet the energy reduction requirements.

Footings to Grade Permit

- Provide updated LEED scorecard and tracking spreadsheet that shows progress is being made on all credits.
- Submit the Cx plan prior to approval of the Footings to Grade Permit.
- Bicycle rack locations must be shown on site and floor plans as part of final site development and landscape plan.
- Provide IAQ Management Plan for Construction;
- Provide updated information showing that water and energy use reductions are being incorporated into the design to meet the required thresholds.
- Submit the LEED Water Use Reduction template showing the project goals and fixtures considered.

Final Building Permit

- Provide updated LEED scorecard and tracking spreadsheet that shows progress is being made on all credits.
 - It is critical to think about the ENERGY STAR components and reduced lighting density early in the project as they must be met for final project approval. Although specific site plan conditions may vary, common Energy Star components include:
 - Clothes Washers
 - Dishwashers
 - Refrigerators

Attachment 6: Falls Church City Green Home Award Program

Awarded by the Building Safety Division, this program highlights residential construction projects that have been monitored by a Home Energy Rating System (HERS) Certified Rater and have shown to conform to one of several approved residential green building certification programs.

Homeowners and developers who choose to participate in the Falls Church City Green Home Award Program will be awarded for doing something positive to improve the sustainability of the environment and the community.

Customers can sign up for the program at the time of permit application and must submit copies of their certification guidelines and their contract with the HERS Certified Rater. They are then provided a yard sign declaring their participation in the program.

Once construction is completed, the customer will submit the final report from the HERS Certified Rater testifying successful completion of the program. The customer will then receive an award, which will be announced by City Council and on this Web site.

Call 703-248-5080 (TTY 711) for more information.

Attachment 7: Arlington County Summary of Green Building Ordinance Language

<http://www.arlingtonva.us/DEPARTMENTS/EnvironmentalServices/epo/EnvironmentalServicesEpoGreenBuildings.aspx>

Green Building

What is “Green Building”?

Green building is a collection of land-use, building design, and construction strategies that reduce the environmental impacts that buildings have on their surroundings. Arlington County has adopted the [US Green Building Council's](#) Leadership in Energy and Environmental Design (LEED™) Green Building Rating System as a way to measure the energy and environmental performance of buildings in the County. The LEED™ rating system allots points within six specific categories for environmentally beneficial building materials and design, in categories such as site location, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. LEED™ is an easy way for any professional, business, or organization to master green building standards and practices. Read a [brochure about Arlington County's Green Building](#) (1 MB, [PDF format](#)) programs.



Cost and Green Buildings

The cost of going green is often raised as an issue. Thoughtful project planning and team coordination – a process known as “integrated design” -- helps ensure that green components are integrated into the project as cost effectively and efficiently as possible. In many cases, “green” does not cost more. In other cases, efficient HVAC equipment, additional insulation, water efficient fixtures, etc. may cost more upfront, but operating costs can be significantly reduced through the life of the building due to lower utility bills and reduced maintenance. Information and studies on the cost of green building are continually being published. The US Green Building Council website ([LINK](#)) maintains an up-to-date list of cost studies for green buildings.

Green Building Site Plan Conditions in Arlington (Private Development)

Arlington County encourages site plan projects to incorporate green building components and processes. Site plan projects are development projects seeking special exception to the Zoning Ordinance. The goal of this program is to reduce the environmental impacts of development. Read a [brochure about Arlington County's Green Building](#) (1 MB, [PDF format](#)) program. The program includes the following requirements:

1. **LEED™ Accredited Professional.** The program requires that all site plan projects have a LEED™ Accredited Professional on the development and construction team.
2. **LEED™ Scorecard.** All site plan applications in Arlington County must include the LEED™ scorecard with an explanation of all the LEED prerequisites each LEED™ credit, describing how they intend to achieve the credit, or why they are unable to incorporate the component into the project. This allows the County to measure a project's overall performance and to collect data on the environmental status of all site plan buildings in the County.
3. **LEED™ Tracking.** During project negotiation, a final number of LEED™ credits is identified and the commitment to incorporate them into the project is formalized in a site plan condition. This condition requires that reports be submitted with specific building permit applications. These reports track the progress of LEED™ prerequisites and components throughout the demolition and construction process. Permits will not be issued if LEED™ reports are incomplete.
4. **Construction Waste Management.** The developer agrees to provide a plan for diverting from landfill disposal the demolition, construction, and land clearing debris generated by the project. The plan should outline recycling and/or reuse of waste generated during demolition and/or construction. The plan should outline specific waste streams and identify the means by which waste will be managed (reused, reprocessed on site, removed by licensed haulers for reuse/recycling, disposal, etc.).
5. **Energy Star Appliances for Multi-family Residential Development.** In order to reduce energy used by standard appliances and fixtures in high-rise residential projects, the following standard language is included in the green building site plan condition (modifications may be made on a case-by-case basis)

For residential development, the developer agrees that all of the following types of appliances, fixtures, and/or building components used in the project shall have earned the U.S. EPA's Energy Star label: clothes washers, dishwashers, refrigerators, ceiling fans, ventilation fans (including kitchen and bathroom fans), residential light fixtures (comply with Energy Star's Advanced Lighting Package), programmable thermostats, and exit signs. The developer shall submit to the County Manager a statement listing all Energy Star-qualified components prior to issuance of the Core and Shell Certificate of Occupancy. For the commercial lighting in common areas of multifamily residential projects, (by way of illustration and not limitation, these areas include lobbies, corridors, stairwells, common rooms, fitness rooms, etc.), the developer shall reduce the need for lighting (through daylighting where possible) and shall specify the use of energy efficient fixtures, bulbs, light sensors, motion sensors, timers, and interior design, e.g., paint color, that maximize energy efficiency in lighting. The guidelines

outlined by the US Green Building Council's LEED for Commercial Interiors (LEED-CI) credit entitled, Optimizing Energy Performance: Lighting Power shall be used toward the goal of maximizing energy efficiency in the lighting of common areas.

6. Standard Site Plan Language

The county's standard site plan language covering green building and LEED issues specifically states the following (modifications may be made on a case-by-case basis):

LEED Credits and Sustainable Design Elements

a. The developer agrees to hire a LEED Accredited consultant as a member of the design and construction team. The consultant shall work with the team to incorporate sustainable design elements and innovative technologies into the project so that numerous building components will earn the developer points under the U.S. Green Building Council's system for LEED certification. Specifically, the developer agrees to include sustainable elements in design and construction that are sufficient to meet the requirements for all LEED Prerequisites and include at least the number of LEED components necessary for baseline LEED certification. The developer agrees to use commercially reasonable efforts to achieve additional LEED points which would qualify the building for certified levels.

b. The developer further agrees to submit, to the Department of Environmental Services (DES) and to the Zoning Office, a report prepared by the LEED consultant and documentation upon request to substantiate the report. Such reports will be submitted prior to issuance of the following permits or certificates of occupancy for construction of the project and will summarize the efforts to date of the inclusion of the sustainable elements within the project:

- 1. Clearing, Grading & Demolition Permit*
- 2. Excavation, Sheeting and Shoring Permit*
- 3. Footing to Grade Permit*
- 4. Final Building Permit*
- 5. Shell and Core Certificate of Occupancy*
- 6. Partial Certificate of Occupancy for occupancy of the last floor of space*
- 7. Master Certificate of Occupancy*

In addition, prior to issuance of the first Certificate of Occupancy after the Shell and Core Permit, the developer will have its LEED consultant submit a certification to the County Manager that the elements to earn the above specified numbers of points have been included in the buildings.

Green Building Fund

The County established a Green Building Fund and a policy of having site plan developers who do not commit to achieving a LEED™ rating from the U.S. Green Building Council (USGBC) contribute to the Fund. The contribution is calculated at a rate of \$0.045 per square foot. (This contribution calculation is based on the fees assessed by the USGBC for registration and evaluation of a formal LEED™ application.) The Green Building Fund is used to provide education and outreach to developers and the community on green building issues. If a project receives LEED™ certification from the USGBC, the Fund contribution is refunded upon receipt of the final LEED™ certification.

Green Building Incentive Program

Originally adopted in October 1999, the incentive program was revised and enhanced in December 2003 and again in March 2009. The program allows a private developer to apply for additional density if the project achieves a LEED™ award from the USGBC. The program applies to all types of building projects (office, high rise residential, etc.) achieving any one of the four LEED™ awards. The Bonus Density Program for Site Plans allows the developer to apply for densities as follows:

LEED Level	Prior to March 14, 2009	After March 14, 2009	
		Office	Residential
Certified	0.15 FAR	0.05 FAR	0.10 FAR
Silver	0.25	0.15	0.20
Gold	0.35	0.35	0.40
Platinum	0.35	0.45	0.50

Find out more about the [Green Building Incentive Program](#) or contact the Arlington County Environmental Planning Office (703-228-4488) or the Arlington County Planning Division (703-228-3525).

Green Building Resources

Read a [brochure about Arlington County's Green Building](#) (1 MB, [PDF format](#)) program, or check out our [Resources](#) page for more information on Green Buildings.

Review [LEED documentation requirements for Site Plan projects](#) throughout the permit process (1MB PDF Format)

DRAFT

Attachment 8: Fairfax County Green Building Policy Board Adoption
www.fairfaxcounty.gov/news/2008/030.htm

Fairfax County Board of Supervisors Adopts Green Building Policy

At its regularly scheduled meeting today, the [Fairfax County Board of Supervisors](#) adopted a green building policy for county facilities. The policy requires that buildings be constructed to meet minimum green building standards, if not exceed them.

Today's board action supports Fairfax County's many [environmental initiatives](#), including [Cool Counties](#). Last year, Fairfax County pledged to reduce its greenhouse gas emissions by 80 percent by 2050. The county led the development of this new initiative, along with the Sierra Club and two other county governments.

Fairfax County will use the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system. At a minimum, county buildings over 10,000 square feet will be required to reach Silver level LEED certification.

The policy applies to the construction of new county buildings and renovations or additions to existing buildings. However, the policy will not be applied to county-constructed single family homes, town houses and low-rise multi-family buildings. Instead, the Energy Star rating system will be used for these types of buildings.

County officials project that the new policy will cost an additional 2-4 percent in construction costs per building. However, these one-time costs are projected to be offset by annual savings in energy and water bills. Per year, green buildings are expected to slash energy costs by 15-25 percent, and water consumption by 20 percent.

One of the county's newest green buildings demonstrates the savings that can be achieved. Built in 2006, Fire Station 40 will save approximately \$15,000 per year in reduced energy and water bills.



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